METRIC

MIL-PRF-89038
AMENDMENT 2
28 March 2000
SUPERSEDING
AMENDMENT 1
27 April 1999

PERFORMANCE SPECIFICATION

Compressed Arc Digitized Raster Graphics (CADRG)

* This amendment forms part of MIL-PRF-89038, dated 6 October 1994, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

* Change address in beneficial comments box to **"Director, National Imagery and Mapping Agency, ATTN: Doctrine and Force Development/DF, Mail Stop P-37, 4600 Sangamore Road, Bethesda, MD 20816-5003".**

PAGE 2

* Change reference in paragraph 2.1.1, STANDARDS, from “MIL-STD-6000010, Department of Defense, DMA Stock Number Bar coding” to “MIL-STD-2414, Standard Practice Bar Coding for Mapping, Charting, and Geodesy Products”.

PAGE 4

* Change paragraph 2.2, c.ISO/IEC DIS 10777-1990, 4 mm – Wide Magnetic Tape Cartridge for Information Interchange. to read as follows: c.ISO/IEC **12247-1993**, 3,81 mm - Wide Magnetic Tape Cartridge for Information Interchange, **Helical Scan recording, DDS format using 60 m and 90 m length tapes**.

DISTRIBUTION STATEMENT A. Approved for public release; distribution unlimited.

PAGE 4 (continued)

* Change paragraph 2.2 g. ISO/IEC DIS 10139 to read **g. ISO/IEC 10149**

* Change title of paragraph 3.2.1 Accuracy to read **3.2.1 Vertical Accuracy**

* Change title of paragraph 3.2.2 Accuracy to read **3.2.2 Horizontal Accuracy**

PAGE 6

* Change paragraph 2.4.2 to read **3.4.2**

PAGE 9

* Change paragraph 3.4.5, subparagraph e. to read as follows:

e. [legend file](s): **(Optional)** The [legend file](s) contain(s) the tiled image data which represent the legend information from the original map series. Only one [legend file] is provided for multiple [legend file]s per distribution volume. Each [legend file] (see 3.11.2) shall include a [header section], [location section], [compression section], [color/grayscale section], [image section], and [replacement/update section] (only present for replacements and updates).

PAGE 37

* On Page 37, change paragraph 3.15 CADRG Update Files. From the following:

3.15 CADRG Update Files. CADRG files are compliant with the Raster Product Format and therefore they contain a configuration control mechanism to support updating. The mechanism exploits the subframe aspects and the [replace/update section of RPF.

To avoid redundancy, and because some of the sections and subsections with RPF are optional, a CADRG update file does not contain all of the information that a full CADRG file contains. The following paragraphs detail which sections are necessary within the update file and which optional sections are not recorded.

PAGE 37 (Continued)

To the following:

3.15 CADRG Update Files. CADRG update files (also called DCHUM files) are replacement CADRG files that conform to MIL-STD-2411 (RPF) and MIL-PRF-89038 (CADRG). The <new/replace/update indicator> in the header section of the file will be equal to 2, to indicate that the file is an update. The attribute section will include an entry for the "Chart Update attribute" which will give information about the edits that have been made to the frame.

PAGES 37 and 38

DELETE paragraphs 3.15.1 through 3.15.8.

PAGE 50

* Add new Section 6.7 as follows:

6.7 Y2K century logic. For this product, the year is represented by a two-character year field. Implementers of this product should use a century logic that is consistent with the fact that the first data set for this product was produced in 1994.

PAGE 55

* On page 55, paragraph 30.3.2, Longitude Equations, formula number (11), delete the open parenthesis "("

PAGE 63

Change TABLE 6. CADRG [frame file] Typical Sizes. From the following:

TABLE 6. CADRG [frame file] Typical Sizes.

Section Name	**Full Frame Example Bytes (% of Total)**		**Partial Frame Example Bytes (% of Total)**	
[header section]	52	(< 0.1 %)	52	(< 0.1 %)
[location section]	286	(~ 0.1 %)	286	(~ 0.1 %)
[coverage section]	96	(< 0.1 %)	96	(< 0.1 %)
[compression section]	65610	(~ 23 %)	65610	(~ 26 %)
[color/grayscale section]	1764	(< 1 %)	1764	(< 1 %)
[image section]	221217	(~ 76 %)	184497	(~ 73 %)
[attribute section]	~400	(< 0.2 %)	~400	(< 0.2 %)
[replace/update section]	29	(< 0.1 %)	29	(< 0.1 %)
Total	289454		252748	

To the following:

TABLE 6. CADRG [frame file] Typical Sizes.

Section Name	**Full Frame Example Bytes (% of Total)**		**Partial Frame Example Bytes (% of Total)**	
[header section]	48	(< 0.1 %)	48	(< 0.1 %)
[location section]	286	(~ 0.1 %)	286	(~ 0.1 %)
[coverage section]	96	(< 0.1 %)	96	(< 0.1 %)
[compression section]	65610	(~ 23 %)	65610	(~ 26 %)
[color/grayscale section]	1764	(< 1 %)	1764	(< 1 %)
[image section]	221217	(~ 76 %)	184497	(~ 73 %)
[attribute section]	~400	(< 0.2 %)	~400	(< 0.2 %)
[replace/update section]	29	(< 0.1 %)	29	(< 0.1 %)
Total	289454		252748	

PAGE 66

* Change TABLE 7. CADRG Attributes and Parameters (Concluded) from the following:

TABLE 7. CADRG Attributes and Parameters (Concluded).

Attribute Description	**Attr ID**	**Parameter Description**	**Parm ID**	**Data Type**
	20	Units of Elevation	2	uint:2
	20	Latitude of Elevation	3	real:8
	20	Longitude of Elevation	4	real:8
Multiple Legend Names	21	Legend File Name	1	asci: 12

To the following
:

TABLE 7. CADRG Attributes and Parameters.

Attribute Description	**Attr ID**	**Parameter Description**	**Parm ID**	**Data Type**
	20	Units of Elevation	2	uint:2
	20	Latitude of Elevation	3	real:8
	20	Longitude of Elevation	4	real:8
Multiple Legend Names	21	Legend File Name	1	asci: 12
Chart Update Information	24	Number of Updates	1	Uint:2
	24	Update Number	2	Uint:2
	24	Update Date	3	asci:8
	24	Number of Subframes Impacted	4	Uint:2
	24	List of Subframes	5	var (se MIL-STD 2411-1)
	24	Number of Characters in Description	6	Uint:2
	24	Change Description	7	asci:va
Contour Interval	25	Contour Interval	1	Uint:2
	25	Units of Measurement	2	Uint:2

PAGE 68

- Change paragraph 60.1.6 Latitudinal frames and subframes from: 60.1.6 Latitudinal frames and subframes. The number of latitudinal frames and subframes in a zone for a given scale can be computed by using the exact poleward and equatorward zone extents and the number of pixels per degree of latitude (as calculated in 60.1.5). The number of latitudinal frames is the difference (in degrees) between the exact poleward zone extent and the exact equatorward zone extent, multiplied by the number of pixels per degree, and divided by 1536, the number of pixel rows per frame. Multiplying the number of frame rows by 6 will yield the number of subframes for that scale and zone.

To the following:

60.1.6 Latitudinal frames and subframes. The number of latitudinal frames and subframes in a zone for a given scale can be computed by using the exact poleward and equatorward zone extents and the number of pixels per degree of latitude (as calculated in 60.1.5). The number of latitudinal frames is the difference (in degrees) between the exact poleward zone extent and the exact equatorward zone extent, multiplied by the number of pixels per degree, and divided by 1536, the number of pixel rows per frame, **and rounded to the nearest integer**. Multiplying the number of frame rows by 6 will yield the number of subframes for that scale and zone.

PAGE 71

* Change the TABLE 9. Frame/Subframe Sizes 1:2,000,000 JNC Charts, Zone Number 9,J Polar (X - Y) Subframes value from “30” to “28”.

PAGE 73

* Change Table 11. Frame/subframe Sizes for 1:500,000 TPC Charts., Zone Number 3,C E-W Pixel Constant value from “327679” to “327680”.

PAGE 75

* Change TABLE 13. Frame/subframe Sizes for 1:100,000 TLM Charts. Zone Number 2,B Subframes in Zone (Rows) Latitudinal value from “478” to “468”.

PAGE 76

* Change TABLE 14. Frame/subframe Sizes for 1:50,000 TLM Charts. Zone Number 7,G Subframes (Columns) Longitudinal value from “5734” to “5733” and E-W Pixel Constant value from “1467904” to “1467948”.

Custodians:
Army - TI
Air Force - 09
Navy - NO
Marine Corps - MC
DISA - DC2

Review Activities:
Air Force - 33
Army - AV, CE2
Coast Guard - CG
DIA - DI
DLA - DH
NORAD - US
NSA - NS

Preparing Activity
NIMA - MP

(Project MCGT-0355)